

DESCRIPTIONS OF THIRTEEN NEW SPECIES OF PARASITIC HYMENOPTERA AND A TABLE TO CERTAIN SPECIES OF THE GENUS *ECPHYLUS*.

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The following paper, which is a contribution from the Branch of Forest Insect Investigations, Bureau of Entomology, deals with the descriptions of certain parasites on forest insects. Some of these parasites appear to be of importance, and it is necessary that names should be made available in the near future. A table to most of the Nearctic species of *Ecpylus* is also included.

One of the species, namely, *Caenopachys scolytivora*, was labeled as a new species by Mr. H. L. Viereck, and has been described by the author, so should be credited to Viereck and Rohwer.

ATANYCOLIDEA APICALIS, new species.

This species differs from *rugosiventris* Ashmead in its smaller size, in having the fifth tergite coarsely sculptured (in *rugosiventris* the fifth tergite is practically impunctate and smooth), in having the embossed area of the second tergite very short (in *rugosiventris* the embossed area of the second tergite is at least two-thirds of the length of the segment), and in having the sixth tergite yellowish.

Female.—Length 4 mm. Front with a strong median furrow which divides at the anterior ocellus forming a Y; thorax smooth and shining; transverse median of the fore wings nearly squarely interstitial with the basal vein; embossed area of the first tergite rounded anteriorly and with a few longitudinal striæ, not smooth, sharply defined as in *rugosiventris*; the lateral areas of the first tergite with short, irregular, poorly defined striæ, and with short longitudinal furrow; the apical lateral sides of the first tergite sharply angled and curved basally; second to fifth, tergites inclusive, longitudinally striate; the embossed area of the second tergite Y-shaped but not one-third the length of the tergite; no defined embossed area laterally on second tergite; sixth and seventh tergites smooth, shining, impunctate. Black; apical joint of the palpi piceous; abdomen dark red except a yellow-

ish spot on the sixth tergite; legs rather densely clothed with gray hair; wings dusky hyaline; costa and stigma brown, the rest of the venation pale brown.

Male.—Length 3.5 mm. The above description of the female will apply well to this sex, but the tarsi are pale brown and the yellow spot covers the base of the seventh tergite; the fifth tergite is smooth, impunctate.

Tryon, North Carolina. Described from one female and one male recorded under Bureau of Entomology Number Hopk.U.S.3070b. Material collected by W. F. Fiske.

Type.—Cat. No. 15507, U.S.N.M.

XYLONOMUS (XYLONOMUS) LEPTURÆ, new species.

Female.—Length to the apex of the abdomen 14 mm.; length of the ovipositor 11 mm. This species agrees with *Xylonomus ruficoxis* Rohwer in having the basal area poorly defined. It is closely related to *ruficoxis*, but may be separated from that species by its smaller size, black posterior coxæ, bases of the tibiæ banded with white, and in having the prescutum margined with rufous.

Cherrydale, Virginia. Described from one female recorded under Bureau of Entomology Number Hopk.U.S.7522c, material collected by R. W. Van Horn. This note states that this species is parasitic on the larvæ of *Leptura nitens*. The adult female (type) was bred May 20, 1908.

Type.—Cat. No. 15489, U.S.N.M.

PRISTAULACUS FLORIDANA, new species.

This species belongs to the genus *Pristaulacus* in the strict sense and is related to *flavicururus* Bradley, but may be separated from this species by the dark spot occurring along the median vein of the fore wings; by having the head shining and below the ocellus with only setigerous punctures; by punctiform foveæ behind each lateral ocellus; by having the postocellar line distinctly longer than the ocellocular line and the intraocellar line distinctly greater than the greatest diameter of the anterior ocellus. These differences are taken from the metatype of Bradley's species in the collection of the United States National Museum. According to the metatype of *flavicururus* the postocellar line is subequal with the ocellocular line, and the intraocellar line is distinctly shorter than the greatest diameter of the anterior ocellus.

Female.—Length, 14 mm.; length, of the antennæ, 11.5 mm.; length of the ovipositor, 20 mm. Head shining; the clypeus and the area immediately around the antennæ opaque, with fine granulations; no depression in front of the anterior ocellus; third antennal joint about one-third shorter than the fourth; prescutum not gibbose, faintly emarginate; metepisternum striato-reticulate, posteriorly the striæ predominating; posterior coxæ without a tooth; the tooth of the

anterior margin of the pronotum small; abdomen with a rather long petiole. Black; sides of the first and most of the basal portion of the second segment red; legs below the coxæ red; wings hyaline, a strong cloud along the median vein and entering the basal portion of the second discoidal cell; a large cloud below the stigma; wings beyond the stigma wanting; venation black; face, posterior orbits (sparsely), anterior margin of the pronotum, and posterior aspect of the propodeum with gray hairs.

Bartow, Florida. Described from one female collected September 19, 1911, by T. E. Snyder. Specimen taken on green foliage

Type.—Cat. No. 15487, U.S.N.M.

TRIASPIS FISKEI, new species.

This species may be readily separated from most of the American species by the very short, almost truncate, third tergite, and by the black hind tibiæ and tarsi.

Female.—Length, 4.5 mm. Clypeus with large punctures; laterally these punctures may become confluent; front shining, with a number of large setigerous punctures; vertex shining, practically impunctate; antennæ 32-jointed; third and fourth joints subequal; beyond the fourth joint the joints gradually decrease in length; prescutum anteriorly with shallow, poorly defined punctures, posteriorly more sparsely punctured and the punctures well defined; scutum punctured only along the notauli; notauli foveolate posteriorly where they form a U; suture between the scutum and scutellum with fine foveæ; scutellum shining, impunctate; dorsal aspect of the propodeum shining with a few poorly defined, shallow punctures divided by a strong longitudinal median carina; posterior aspect of the propodeum coarsely reticulate, without any defined areas; first tergite strongly striato-reticulate, laterally the striæ predominating, medianly the reticulations predominating; second tergite striato-reticulate, laterally the striæ predominating and curved toward the middle so the apical margin in the middle is transversely striato-reticulate, medianly reticulations predominating; third tergite about one-fourth shorter than the second, the lateral angles rounded, in the middle truncate, covered with fine longitudinal striæ. Black; clypeus, mandibles except apices, scape, lower margin of the pronotum and malar space rufo-piceous; palpi pallid; tegulæ yellowish brown; legs except apical two-thirds of the hind tibiæ and all of their tarsi which are brownish, reddish yellow; wings hyaline; costa and stigma rather dark brown; venation pale brown.

Tryon, North Carolina. Described from one female recorded under Bureau of Entomology Number Hopk.U.S.3103j. Specimen bred by W. F. Fiske, for whom the species is named.

Type.—Cat. No. 15519, U.S.N.M.

HETEROSPILUS LEPTOSTYLI, new species.

This species is related to *Heterospilus anthraxæ* Ashmead, but may be separated from that species by the absence of striæ at the extreme base of the fourth tergite, by having the notauli complete and not subfoveolate, in having the mesoscutum more shining, in the shining propodeum and the yellow pronotum.

Female.—Length 2.5 mm. Head shining, polished, impunctate; third and fourth antennal joints subequal in length; mesoscutum shining, very finely granular; notauli complete, sharply defined, not foveolate; scutellum shining; propodeum shining, with strong median carina which joins the anterior apex of the diamond-shaped areola; ovipositor slightly more than half the length of the abdomen. Black; mandibles except apices, antennæ, pronotum, legs, second and extreme base of the third tergites yellowish; wings hyaline, iridescent; venation pale brown.

Male.—Length 2.5 mm. Besides the usual sexual characters the male is like the female.

According to the paratypes this species may vary to the extent of having the flagellum dusky.

Tryon, North Carolina. Described from three females and two males recorded under the Bureau of Entomology Number Hopk. U. S. 3045c, which refers to a note stating that this species is parasitic on the larvæ of *Leptostylus collaris* in chestnut. Insects bred by W. F. Fiske.

Type.—Cat. No. 15510, U.S.N.M.

CÆNOPACHYS SCOLYTIVORA, Viereck and Rohwer, new species.

Apparently similar to the genotype of this formerly monotypic and monobasic genus, but distinguished, however, by the thickened portion of the cubitus beyond the second transverse cubitus being only half or less than half the length of the corresponding part of the radius, and in the 20-jointed antennæ.

Male.—Length 3 mm. Front with the excavation finely, transversely striate; the raised portion of the front with large, sometimes confluent punctures; vertex and posterior orbits very finely reticulate; third antennal joint much shorter than the fourth, fourth and fifth subequal; scutum and prescutum opaque, finely granular, prescutum finely reticulate; notauli well defined, V-d posteriorly and finely foveolate; scutellum finely granular; propodeum opaque, finely granular with lateral regions well defined; a complete median carina well defined and joining at apex of the elongate, diamond-shaped area; the lateral areas defined posteriorly by oblique carinæ; first abdominal segment about one-fifth longer than its apical width with strong irregular striations; second and following abdominal

segments shining, impunctate. Rufo-piceous; frontal depression, scutum and prescutum, posterior part of the mesopleura blackish; basal joints of the antennæ ferruginous, apical joints, piceous; the lateral part of the front and the legs paler than the body; wings strongly dusky with a hyaline band across them at the base of the stigma and with the bases clear.

Paratype does not differ essentially from the type.

Elmore, South Dakota. Described from two males recorded under Bureau of Entomology Number Hopk. U. S. 730, material collected by J. L. Webb.

Type.—Cat. No. 15520, U.S.N.M.

Genus ECPHYLUS Förster.

Table to certain Nearctic species of Ecphylus.

The species described as *texanus* by Brues is the only Nearctic species known to be omitted from the following table, which is based on females only:

First tergite much longer than its apical width; prescutum with strong lateral tubercles.....	1
First tergite with the apical width greater than or subequal with its length.....	2
1. Ferruginous; prescutum without a median furrow; ovipositor longer than the body.....	<i>pallidus</i> Ashmead.
Black; prescutum with a foveolate median line; ovipositor about the same length as the body.....	<i>hubbardi</i> Rohwer, p. 538.
2. First tergite with all the striæ of equal size so there is no median area.....	3
First tergite with two striæ predominating or with two furrows so there is a well-defined median area.....	4
3. Notauli foveolate; piceous; ovipositor as long as abdomen.....	<i>lycti</i> Rohwer, p. 538.
Notauli not foveolate; head black, thorax and abdomen rufo-ferruginous; ovipositor shorter than the abdomen.....	<i>nigriceps</i> Ashmead.
4. Prescutum with an impressed median line (dark piceous; middle area of the first tergite narrowed posteriorly and not as coarsely sculptured as sides).	<i>hypothernemi</i> Ashmead.
Prescutum without an impressed median line.....	5
5. Notauli foveolate (rufo-ferruginous; ovipositor shorter than the body).	<i>schwarzi</i> Rohwer, p. 538.
Notauli not foveolate.....	6
6. Notauli obsolete posteriorly (ovipositor much shorter than the abdomen).	<i>johnsoni</i> Rohwer, p. 539.
Notauli complete.....	7
7. Ovipositor much shorter than the abdomen; head black, thorax and abdomen ferruginous.....	<i>californicus</i> Rohwer, p. 539.
Ovipositor longer than or subequal with length of the abdomen; head, thorax, and abdomen (in part) piceous.....	8
8. Mesonotum shining, impunctate; first tergite bright yellow, the following segments piceous; ovipositor longer than abdomen.....	<i>lepturgi</i> Rohwer, p. 540.
Mesonotum finely granular; first tergite and base of second ferruginous; rest of abdomen piceous; ovipositor subequal in length with the abdomen.	<i>bicolor</i> Rohwer, p. 540.

ECPHYLUS HUBBARDI, new species.

Female.—Length to the apex of the abdomen 2 mm.; length of the ovipositor 2 mm. Head smooth, shining, impunctate; prescutum subopaque, finely granular, laterally strongly angulate; notauli complete, foveolate; scutum shining; suture between the scutum and scutellum strongly foveolate; propodeum reticulate without a median carina or defined lateral areas; first abdominal segment much longer than its apical width, sharply defined laterally by carinae and with two nearly parallel longitudinal carinae near the middle which divide the segment into three areas, the rest of the surface longitudinally striate but in the middle area the striae are broken; the rest of the abdomen shining, impunctate; ovipositor nearly as long as the insect. Piceous; antennae basally yellowish; the head, the first and second tergites reddish piceous; legs rufo-piceous; trochanters pallid, anterior legs slightly paler; wings hyaline, slightly dusky; venation very pale brown.

Chi-Ri-Cahua Mountains, Arizona. Described from one female collected by H. C. Hubbard.

Type.—Cat. No. 15511, U.S.N.M.

This species is given the name *hubbardi* after the collector, and is the manuscript name proposed by Dr. W. H. Ashmead.

ECPHYLUS LYCTI, new species.

Female.—Length to the apex of the abdomen 2.25 mm.; length of the ovipositor 1.5 mm. Head shining; the area immediately behind the lateral ocelli with rather strong transverse carinae; prescutum finely granular, distinctly tuberculate laterally; notauli complete, foveolate; scutum finely granular; the suture between the scutum and scutellum strongly foveolate; propodeum rather coarsely granular with defined lateral areas and short longitudinal median carina which joins the apex of a poorly defined, diamond-shaped areola; first tergite with its length and apical width subequal, with uniform, strong longitudinal carinae; abdomen beyond the first tergite shining, impunctate. Piceous; head black; legs yellowish brown; wings hyaline, slightly dusky; venation pale brown.

Lake City, Florida. Described from one female labelled "ex *Lyctus* species in bamboo." Bred by H. G. Hubbard.

Type.—Cat. No. 15513, U.S.N.M.

ECPHYLUS SCHWARZI, new species.

Female.—Length to the apex of the abdomen 1.5 mm.; length of the ovipositor about 0.5 mm. Head shining, impunctate; prescutum finely granular; notauli complete, foveolate; scutum shining, practically impunctate, tuberculate laterally; the suture between

the scutum and scutellum strongly foveolate; propodeum finely granular without well-defined carinæ; first tergite with its apical width subequal with its length, sharply defined laterally by carinæ; two of the carinæ predominating, so it is divided into three areas which are finely, longitudinally striate; abdomen beyond the first tergite impunctate. Ferruginous; antennæ beyond the fourth joint piceous; wings hyaline, strongly iridescent; venation ferruginous.

Santa Rita Mountains, Arizona. Described from two females collected June 10 by Hubbard and Schwarz. It is named in honor of E. A. Schwarz.

Type.—Cat. No. 15515, U.S.N.M.

ECPHYLUS JOHNSONI, new species.

Female.—Length to the apex of the abdomen 1.25 mm.; length of the ovipositor 0.75 mm. Head smooth, practically impunctate; prescutum very finely granular and not dentate laterally; scutum shining, impunctate; notauli not defined posteriorly; suture between the scutum and scutellum faintly foveolate; propodeum finely granular with strong median carina which connects with the apex of a nearly diamond-shaped areola; basal tergite almost twice as wide apically as its length, not defined laterally by carinæ but with two longitudinal carinæ forming a median area; median area more strongly striate than the lateral areas; abdomen beyond the first tergite shining, impunctate. Piceous; abdomen, propodeum slightly paler; wings hyaline, iridescent; venation very pale brown.

North Mountain, Pennsylvania. Described from one female collected September 3, 1897. Species was probably collected by C. W. Johnson, as the manuscript name, *johnsoni*, of Ashmead, indicates.

Type.—Cat. No. 15512, U.S.N.M.

ECPHYLUS CALIFORNICUS, new species.

Female.—Length to the apex of the abdomen 2 mm.; length of the ovipositor 0.75 mm. Head shining, impunctate; prescutum shining, practically impunctate, laterally distinctly tuberculate; notauli not foveolate; scutum posteriorly finely granular; the suture between the scutum and scutellum distinctly but finely foveolate; propodeum granular, without carinæ; first tergite slightly wider apically than long, without well-defined lateral carinæ but with two sublateral strong carinæ which divide the segment into three areas which are rather finely but distinctly striate; segments beyond the first tergite shining, impunctate. Rufo-ferruginous; head black; first five joints of the antennæ pallid, apically strongly dusky; legs slightly paler than the body; wings hyaline; venation pale brown.

Siskiyou County, California. Described from one female.

Type.—Cat. No. 15514, U.S.N.M.

ECPHYLUS LEPTURGI, new species.

Female.—Length to the apex of the abdomen about 1.5 mm.; length of the ovipositor 1.25 mm. Head shining, impunctate; scutum and prescutum shining, impunctate, the latter not dentate laterally; notauli completely defined not foveolate; suture between the scutum and the scutellum not foveolate; propodeum granular with a faintly defined, median, longitudinal carina which joins the apex of an elongate, diamond-shaped areola, laterally with carinæ; first tergite a little wider apically than its length; sharply defined laterally with longitudinal carinæ, divided into three areas the middle area narrows apically and is irregularly striate, the lateral areas with well-defined longitudinal carinæ; beyond the first tergite the abdomen is shining, impunctate. Rufo-piceous; first tergite, legs except the piceous posterior femora bright yellow; wings hyaline; venation pale brown.

Tryon, North Carolina. Described from two females, the type recorded under Bureau of Entomology Number Hopk.U.S.3012o, which refers to a note stating that this species is bred from a cocoon found in the larval mine on *Lepturges facetus* in chestnut. A paratype is recorded under Bureau of Entomology Number Hopk.U.S.3012h3. Material collected and bred by W. F. Fiske.

Type.—Cat. No. 15517, U.S.N.M.

ECPHYLUS BICOLOR, new species.

Female.—Length to the apex of the abdomen 2 mm.; length of the ovipositor about 1 mm. Head shining, impunctate; prescutum finely granular, subtuberculate laterally; notauli complete, sharply defined; scutum shining, practically impunctate; suture between the scutum and scutellum faintly foveolate; propodeum finely granular with a short median carina which joins the apex of a long, diamond-shaped area, with two lateral carinæ; first tergite much wider apically than long, sharply defined laterally by carinæ, two of the striæ predominating so it is divided into three areas which are themselves finely, longitudinally striate to the apex of the first tergite; tergum polished, impunctate. Black; propodeum very dark piceous; the first and the base of the second tergite ferruginous; legs piceous; wings hyaline, iridescent; venation pale brown.

Easton, Washington. Described from one female collected by A. Koebele.

Type.—Cat. No. 15516, U.S.N.M.